Update on Implementation of HIV Rapid Testing in Health Department Supported HIV Prevention Programs

May 2011

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Executive Summary

In 2010, NASTAD conducted a survey of the 65 state and local health departments[1] funded by the Centers for Disease Control and Prevention (CDC) Division of HIV/AIDS Prevention to monitor their efforts to implement and support rapid HIV testing. The survey was designed to provide a deeper understanding of the use of rapid HIV testing in conjunction with health department supported HIV prevention efforts and was a follow-up to previous assessments conducted in 2006 and 2008. Implementation of HIV testing in dental care settings was also addressed in the survey.

This report highlights major topic areas assessed in the survey, including implementation, procurement, rapid test performance, adoption of multi-test algorithms, future plans and technical assistance needs. Findings from this survey will contribute to the development and prioritization of technical assistance activities and guide education and advocacy efforts.

Implementation

Nearly all health departments have adopted rapid HIV testing. At the time of the survey, all but one health department were using rapid HIV tests in their supported programs. Rapid testing is provided in a wide variety of venues. Since the 2008 survey, health departments have expanded the use of rapid HIV tests in key venues, most notably STD clinics, hospital emergency departments, substance abuse treatment facilities and correctional health clinics. This increase may be attributed to federal funding made available under CDC PS07-768, *Expanded Integrated Human Immunodeficiency Virus (HIV) Testing for Populations Disproportionately Affected Primarily African Americans* or the "Expanded Testing Initiative."

Rapid testing accounted for 61 percent of all HIV tests conducted by health departments in both the 2008 and the 2010 surveys. Eighty-seven percent of health departments reported that rapid testing is conducted on whole blood and 78 percent indicated rapid testing is conducted on oral fluid specimens. Emerging test technologies are more sensitive than currently available technologies and offer the opportunity to conduct multiple assays simultaneously (e.g., HIV and hepatitis C). Few of these for HIV, however, are likely to be approved for use with oral fluid. Health departments will need to carefully consider the tradeoff of lowered sensitivity compared to the convenience of testing with oral samples.

Procurement

Price is the most important factor considered by health departments in their selection of which brands of rapid tests to use. Sensitivity and ease of use, particularly with respect to integrating HIV testing into clinic flow, were also identified as top factors in selecting which rapid test(s) to use. The majority of health departments use more than one rapid HIV test. Health departments use rapid HIV testing in a wide array of settings and for diverse populations and thus must have the ability to match test features to various settings and populations to optimize HIV testing efforts.

1 The 50 states, the District of Columbia, Puerto Rico, U.S. Virgin Islands, American Samoa, Federated States of Micronesia, Guam, Marshall Islands, Northern Mariana Islands, Palau, Chicago, Houston, Los Angeles County, New York City, Philadelphia and San Francisco

Rapid Test Performance

All of the rapid HIV tests currently in use by health department supported HIV testing programs perform well. Six health departments identified a total of eight false positive clusters. Investigation of these clusters suggested that the clusters were attributable to user error and patient factors.

Adoption of Multi-test Algorithms

Ten health departments reported using multiple rapid tests in combination, compared with two that reported doing so in the 2008 survey. Forty-six percent of health departments expressed interest in validating multi-test algorithms for use at the point-of-care and 43 percent requested technical assistance in adopting multi-test algorithms.

Future Plans and Technical Assistance Needs

Nearly two-thirds of health departments reported anticipating further expansion of rapid HIV testing. Community-based organizations, outreach/field sites, STD clinics, hospital emergency departments and community health clinics emerged as priorities for planned expansion. These venues may be high yield sites, which contributed to optimizing prevention efforts. Health departments also have substantial experience in successfully implementing HIV testing in these venues.

HIV Testing in Dental Care Settings

While ten health departments reported supporting HIV testing in dental care settings, nearly one-half of health departments indicated that they have no plans to support implementation of HIV testing in dental care settings. Financing is the most important barrier, followed by a lack of a clear understanding of the feasibility of HIV testing in dental care settings.

Introduction

In 2010, NASTAD conducted a survey of health departments to monitor their efforts to implement and support rapid HIV testing. The survey was designed to provide a deeper understanding of the use of rapid HIV testing in conjunction with health department supported HIV prevention efforts. Specifically, this survey examined the mechanisms and resources used by health departments to procure rapid HIV test devices; the types of test technologies and volume of tests conducted by health department supported testing programs; the venues in which rapid HIV testing is conducted and health department plans and priorities for expansion of rapid HIV testing. Issues associated with the use of rapid HIV tests from various manufacturers, performance of rapid HIV tests and use of multi-test algorithms were also examined. Implementation of HIV testing in dental care settings was also addressed in the survey. This survey was a follow-up to previous assessments conducted in 2006 and in 2008. Findings from this survey will contribute to the development and prioritization of technical assistance activities and guide education and advocacy efforts.

Methodology

In April 2010, AIDS directors from the 65 CDC-funded state, territorial and directly-funded city health departments were notified, via email, of the rapid testing assessment and provided with information necessary to complete the on-line survey questionnaire. Health departments were asked to complete the survey within a two-week period. A reminder email was sent one week prior to the submission deadline. After the response deadline had passed, health departments that had not responded to the survey were contacted via email and phone and encouraged to complete the survey.

A total of 58 health departments completed the survey, including all 50 state health departments and the District of Columbia and five of the six directly-funded cities.

The *survey* included 33 questions, addressing six major topic areas: implementation, procurement, rapid test performance, adoption of multi-test algorithms, future plans and technical assistance needs and implementation of HIV testing in dental care settings.

1. The implementation section examined the venues and settings in which health departments have implemented rapid testing, the volume of tests conducted (by test method), the various brands of tests being used by health departments, issues and practices associated with confirmatory testing for reactive rapid tests and referral practices.

2. The next major section of the survey addressed procurement, including the mechanisms used by health departments to purchase rapid HIV tests.

3. Rapid test performance was addressed in the third section of the survey. Questions in this section examined health department experiences and practices associated with false-positive clusters and quality assurance practices.

4. The fourth section of the survey examined the use of combinations of multiple rapid HIV tests by health department supported HIV testing programs.

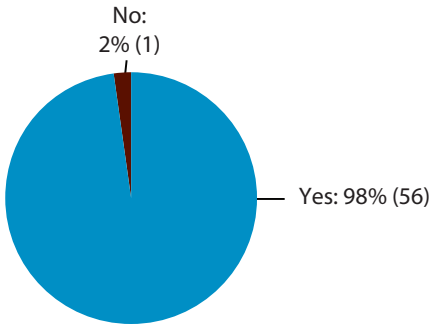
5. The fifth section of the survey addressed health department future plans for use of rapid HIV tests and technical assistance needs associated with implementing and sustaining rapid HIV testing efforts.

6. The final section of the survey examined health department efforts around implementing and supporting HIV testing in dental care settings. Questions in this section examined planning for, and implementation of, health department supported HIV testing in dental settings and coordination and consultation with key partners. Challenges to implementation were examined and prioritized and technical assistance needs were identified.

Findings

Health departments were asked to indicate whether they conduct or support their grantees to conduct HIV testing using rapid HIV tests. As illustrated by Figure 1, health departments have nearly universally adopted rapid HIV testing.

Figure 1: Percentage of health departments that support rapid HIV testing (n=57)



The health department that did not support rapid testing at the time of the survey indicated that at the time of the survey it had implemented a rapid testing pilot project.

Implementation

Health departments were asked to indicate the venues and settings in which rapid HIV testing is provided. The results are presented in Table 1.

Table 1: Venues Where Health Departments Support Rapid HIV Testing	Percent/Number (n=57)
Community-based organizations	97% (55)
STD clinics	84% (48)
Community health centers	81% (46)
Substance abuse treatment centers	72% (41)
CBO mobile units	68% (39)
Correctional facilities	63% (36)
Family planning clinics	54% (31)
Hospital emergency departments	51% (29)
Health department mobile units	44% (25)
TB clinics	35% (20)
Primary care clinics	30% (17)
Prenatal/obstetrical clinics	25% (14)
Labor and delivery settings	25% (14)
Hospital outpatient settings	21% (12)
Urgent care clinics	19% (11)
Dental care settings	18% (10)
Hospital inpatient settings	14% (8)
Other (please describe)	30% (17)

Other venues/settings in which rapid HIV testing was reported being used include: community outreach (e.g., bath houses, shelters, churches, drop-in centers); state/local public health clinics; student health centers; substance abuse treatment facilities; mental health facilities and HIV and STD partner services field investigations.

Health departments were asked to report the number of unique sites where rapid HIV testing is provided. A total of 2,938 unique sites (median 14.5; range 3 to 376) were reported by the 56 health departments that responded to this question.[2]

Of the 58 health departments that responded to the survey, 57 (98 percent) reported that they support rapid HIV testing in field and outreach settings. The outreach and field venues where HIV rapid testing is offered, and the percentage of health departments supporting rapid testing in such venues, are presented in Table 2. Special events, such as National HIV Testing Day, received the most frequent mention. Rapid HIV testing is also widely used by health departments in conjunction with partner services, mobile van outreach and street outreach activities.

2 One state was unable to provide the number of unique sites citing the fact that outreach sites move weekly.

Table 2: Outreach and Field Venues in Which Rapid HIV Testing is Used	Percent/Number (n=57)
Events (e.g., health fairs, National HIV Testing Day)	95% (54)
Mobile van	79% (45)
Colleges/universities	70% (40)
Partner services field investigation/notification	70% (40)
Street outreach	68% (39)
Bars	67% (38)
Churches/temples/mosques	60% (34)
Housing providers (e.g., homeless shelters)	60% (34)
Parks	53% (30)
Bathhouses	42% (24)
Drug selling sites (crack houses, etc.)	25%(14)
House parties	23% (13)
Beauty shop/barbershops	16% (9)
Other outreach (please describe)[3]	21% (12)

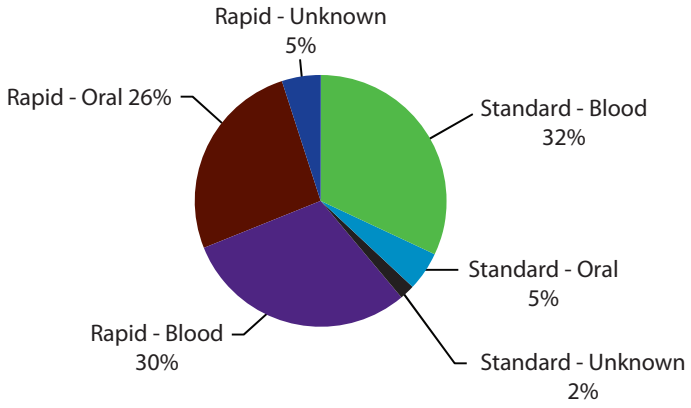
Twelve health departments reported outreach and field settings in a variety of "other" settings. Such settings included migrant clinics, needle exchange sites, clubs, parole offices, halfway houses and support groups.

Health departments were asked to respond to two questions regarding the types of specimens used in conjunction with rapid HIV testing. Of 55 health departments responding to these questions, 48 (87 percent) indicated that rapid testing is conducted on whole blood specimens obtained via finger stick or venipuncture. Forty-three (78 percent) health departments indicated that rapid testing is conducted on oral fluid. Thirty-six (65 percent) health departments indicated conducting rapid HIV testing on both whole blood and oral fluid specimens.

Fifty-three health departments reported the volume of HIV testing conducted during 2009 in health department supported programs. A total of 2,951,647 HIV tests were conducted in 2009. Health departments were able to provide the type of test and specimen type associated with these tests for all but 130,955 (4.4 percent) tests. As presented in Figure 2, of the 2,856,941 tests for which test and specimen type was reported, rapid HIV tests accounted for 61 percent of all tests. Rapid HIV tests conducted on blood (either via finger stick or venipuncture) accounted for 30 percent of all tests conducted and rapid HIV tests conducted on oral fluid accounted for 26 percent. Standard HIV testing on oral specimens accounted for only five percent of all tests conducted in health department supported programs in 2009.

3 "Other" responses included migrant clinics and camps; needle exchange programs; clubs; public sex environments; court.

Figure 2: Health Department Supported HIV Testing by Type and Specimen



Health departments using rapid HIV tests were asked to estimate the proportion of tests conducted with various brands of rapid tests (Table 3). Among the 54 health departments responding to this question, 24 (44 percent) reported exclusively using one brand. The remainder of health departments reported using a combination of brands.

Table 3: Rapid Test Brands Used by Health Departments	Percent/Number (n=54)
OraQuick Advance™	31% (17)
Clearview Complete™ & OraQuick Advance™	9% (5)
StatPak ™& OraQuick Advance ™	9% (5)
Clearview Complete ™	7% (4)
Clearview Complete ™& OraQuick Advance™ & UniGold™	7% (4)
Clearview Complete™ & StatPak™ & OraQuick Advance™ & UniGold™	6% (3)
OraQuick™ & UniGold ™	6% (3)
UniGold™	6% (3)
Clearview Complete™ & StatPak™ & OraQuick Advance™	4% (2)
StatPak™ & OraQuick Advance™ & UniGold	4% (2)
Unknown	4% (2)
Other [4]	7% (4)

From a list of 16 factors,[5] health departments were asked to select and rank the top three most important factors determining which rapid test(s) they used. Of these 16 factors, seven emerged as key factors used by health departments in making decisions about which rapid test(s) to use: price, sensitivity, specificity, ease of integration into clinic flow, ease of specimen collection, ease of performing test and approved for oral specimens.

4 These health departments indicated using combinations of four or more rapid test brands.

5 Survey respondents were asked to rank the following factors: sensitivity, specificity, price, run time, read window, ease of specimen collection, oral application, ease of reading results, ease of performing test, approved for HIV-2, length of shelf life (tests), length of shelf life (controls), operating temperature, storage temperature, ease of integration into clinic flow and other.

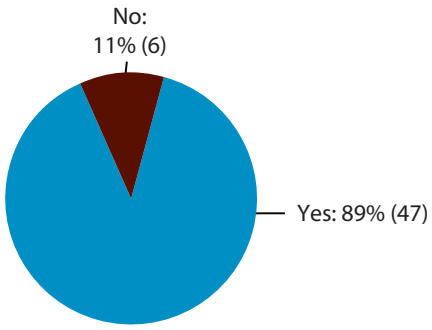
Of 54 health departments responding to this question:

- 33 (61 percent) ranked price of rapid tests among the top three factors considered in choosing which rapid test(s) to use. Thirteen health departments (24 percent) ranked price as the most important factor.
- 18 (33 percent) ranked ease of integration into service/clinic flow among the top three factors considered. Five health departments (9 percent) ranked integration into service/clinic flow as the most important factor.
- 16 (30 percent) ranked ease of specimen collection among the top three factors. Four health departments (7 percent) ranked ease of specimen collection as the most important factor.
- 15 (28 percent) ranked specificity among the top three factors. Five health departments (9 percent) ranked specificity as the most important factor.
- 14 (26 percent) ranked sensitivity among the top three factors considered. Ten health departments (19 percent) selected sensitivity as the most important factor.
- 14 (26 percent) ranked ease of performing the test among the top three factors. Four health departments (7 percent) ranked this factor as the most important.
- 11 (20 percent) ranked approved for oral specimen among the top three factors. Six (11 percent) ranked it as the most important.

The other factors all appeared among the top three factors by very few health departments.

Fifty-three health departments responded to a question regarding whether health department supported testing programs that use rapid HIV tests are required to obtain confirmatory specimens at the time that reactive results from rapid tests are provided to clients. Of these 53, 47 (89 percent) indicated that obtaining a confirmatory specimen at the time of reactive results delivery is required (Figure 3).

Figure 3: Percentage of Health Departments Requiring Confirmatory Specimen at the Time of Reactive Rapid Test Result (n=53)



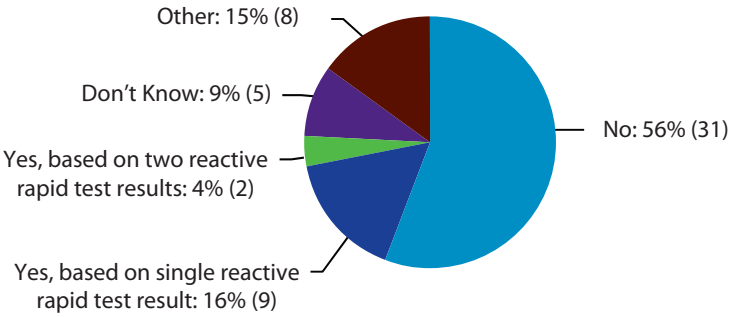
Among the 47 health departments requiring confirmatory specimens at the time of reactive results disclosure, 42 (89 percent) require the client to return to the HIV test site to obtain confirmatory results. Four (9 percent) health departments provide confirmatory results to clients via partner services and one (2 percent) reported forwarding confirmatory results directly to HIV medical providers.

At the same time, 25 (46 percent) health departments allow HIV test providers to refer clients to medical care for HIV without a confirmatory test result. Health departments were asked to indicate whether the practice of making care referrals without a confirmatory result in hand had negatively impacted the volume of confirmatory testing conducted. Twenty-four of the 25 health departments that allow such referrals responded to this question. Among these 24, 16 (67 percent) reported that this practice had not resulted in a decreased number of confirmatory tests conducted. Two health departments (8 percent) reported a decrease and six (25 percent) did not know whether this practice had resulted in a decreased number of confirmatory tests being performed.

Health departments that allow HIV test providers to refer clients to medical care without a confirmatory test result in hand were also asked to report whether this practice had negatively impacted surveillance case counts. Of 23 health departments responding to this question, 15 (65 percent) reported that the practice of referring clients to care without a confirmatory test result had not decreased HIV surveillance case counts. Eight (35 percent) reported that they did not know whether HIV surveillance case counts had decreased as a result of this practice.

Health departments were also asked to indicate whether Ryan White clinics accept clients who are referred to them without confirmatory test results, i.e., on the basis of a single or dual reactive rapid test result. Results are presented in Figure 4.

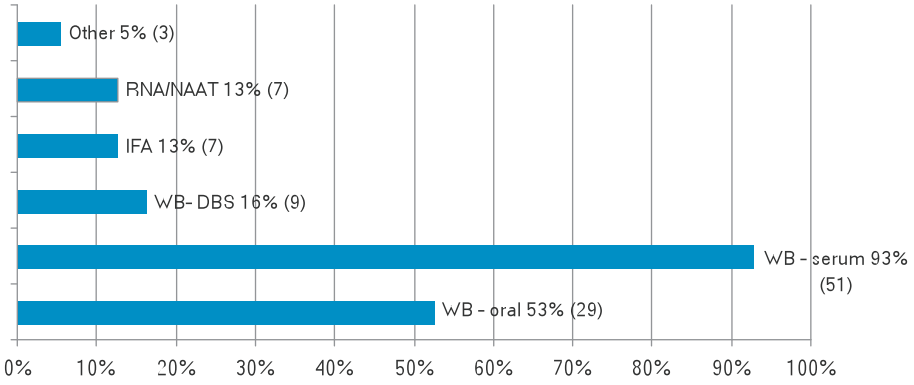
Figure 4: Percentage of Health Departments Reporting that Ryan White Clinics Accept Referred Clients Without Confirmatory Test Results (n=55)



Thirty-one (56 percent) health departments reported that Ryan White clinics in their jurisdiction will not accept referred clients without confirmatory test results in hand. One in five health departments indicated that Ryan White clinics in their jurisdiction will accept referred clients without confirmatory results if those clients have one (nine health departments) or two (two health departments) reactive rapid test results. Five health departments indicated that they do not know whether Ryan White clinics in their jurisdiction will accept referred clients who do not have confirmatory results. Eight health departments indicated that Ryan White clinics will accept referrals without confirmatory test results, but that the Ryan White clinics will conduct confirmatory testing prior to enrollment.

Confirmatory testing used in conjunction with reactive rapid tests was examined. As presented in Figure 5,[6] the majority of health departments conduct Western blot (WB) testing for this purpose. Fifty-one (93 percent) conduct Western blot testing on serum specimens, 29 (53 percent) on oral specimens and nine (16 percent) on dried blood spots (DBS). Nucleic Acid Amplification Testing (NAAT) and Immunofluorescent assay (IFA) were each reported to be used to confirm reactive rapid test results by seven (13 percent) health departments. Two health departments indicated that viral load testing is used to confirm reactive rapid test results.

Figure 5: Type of Testing Used to Confirm Reactive Tests



Twenty-eight (51 percent) of 55 health departments reported that confirmatory test results are available to HIV test sites within six to ten days. Eleven (20 percent) reported that turn-around time is between three and five days while eight (15 percent) indicated results are returned to HIV test sites within two days. Three health departments (6 percent) reported that turn-around time is greater than 10 days. The remaining health departments reported variable turn-around depending on the type of specimen submitted or the particular laboratory used to process the specimen. One health department did not know the turn-around time.

Among 48 health departments responding to a question about confirmatory testing for reactive rapid tests obtained on oral fluid, 30 (63 percent) indicated that they conduct confirmatory testing on oral fluid specimens. Six (14 percent) of 43 health departments reported that they require test sites to conduct a second rapid test on a blood sample immediately following a reactive result obtained on an oral sample.

Health departments were asked which test results are required by statute or regulation to be reported to the health department. The results are presented in Table 4.[7]

6 Health departments were allowed to provide multiple responses to this question.

7 The validity of these results should be questioned . "Reported" as associated with EIA and rapid reactives, may have been misinterpreted. These results may be "reported" to a health department HIV program into service data sets (i.e., PEMS) by programs supported by the health department.

Table 4: Test Results Required by Statute or Regulation to be Reported to the Health Department	Percent/Number (n=54)
Western blot positive results	94% (54)
Viral load	76% (41)
CD4	70% (38)
EIA reactive results	41% (22)
IFA	41% (22)
Rapid HIV reactive results	33% (18)
Other	15% (8)

Positive Western blot results are reportable by statute or regulation in all but four jurisdictions. Viral load and CD4 results are reportable by statute or regulation in most jurisdictions. Reactive EIA and rapid test results are reportable in fewer jurisdictions. Two health departments indicated that the results of NAAT tests are reportable. One indicated that CD4 counts below 200 are reportable.

Procurement

The mechanism(s) used by health departments to purchase rapid HIV tests is presented in Table 5.[8]

Table 5: Method of Procurement for Rapid HIV Tests	Percent/Number (n=55)
Health department (HD) HIV program negotiates with company followed by purchase through HD procurement process	55% (30)
HD procurement process	44% (24)
Purchased by grantees/service providers	29% (16)
HD HIV program negotiates with company followed by purchase outside of HD procurement process	11% (6)
Purchased by another state/local department or organizational unit within HD (e.g., the laboratory or pharmacy)	11% (6)
Purchased through an intermediary (e.g., a hospital, clinic or CBO/ASO)	7% (4)
Purchases via a 340B program	0% (0)

The majority (55 percent) of health departments negotiate directly with companies that manufacture and/or market rapid HIV tests and then purchase tests via regular health department procurement processes. Forty-four percent of health departments only use established health department procurement processes. Slightly more than one quarter of health departments provide funding directly to grantees and/or other local service providers to enable them to purchase tests. None of the health departments responding to this question indicated that they purchase rapid tests through a 340B program using the HRSA Prime Vendor negotiated price. Most health department procurement processes involve a bid process.

Health departments were asked to provide the price for each rapid test brand purchased by the health department. Fifty health departments provided this information. The mean, median and range of prices for each of the six rapid tests are presented in Table 6.

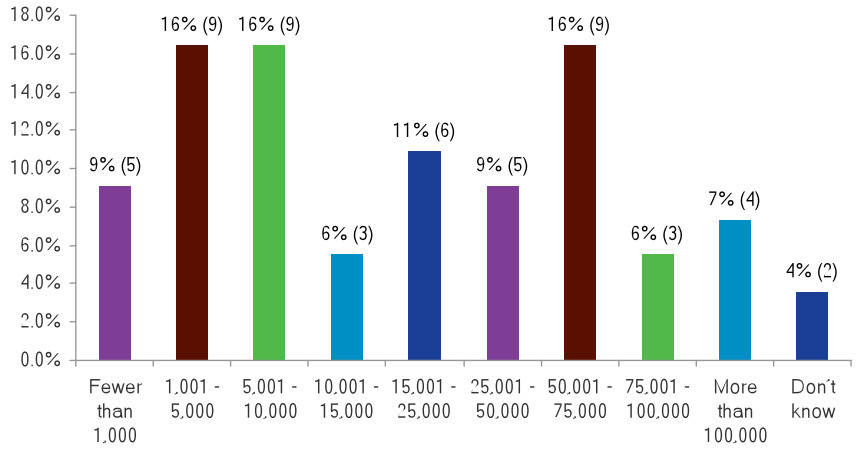
8 Health departments were allowed to provide multiple responses to this question.

Table 6: Prices of Rapid Tests Purchased by Health Departments (n=50)						
	Clearview Complete™	Clearview Statpak™	Multi-spot™	OraQuick Advance™	Reveal™	UniGold™
Mean	$8.51	$7.17	$20.21	$11.84	$0.00	$8.16
Median	$9.00	$8.00	$17.32	$12.00	$0.00	$8.00
Range	$8 - $10.50	$7 - $9	$17.32 - $63.50	$10.63 - $13	N/A	$8 - $13

Multi-spot™ has the highest purchase price, as reported by two health departments. OraQuick Advance™ has the next highest purchase price, as reported by 38 health departments. Clearview StatPak™ has the lowest purchase price, as reported by 22 health departments. Six health departments were unable to report the purchase price for rapid tests. Of these six, four were prohibited from doing so by a confidentiality agreement with the vendor. The remaining two health department respondents did not have access to information about the purchase price.

Health departments were asked to estimate the quantity of rapid test devices they anticipated purchasing during 2010. The responses to this question are presented in Figure 6.

Figure 6: Estimate of Number of Rapid Tests to be Purchased by Health Departments in 2010 (n=55)



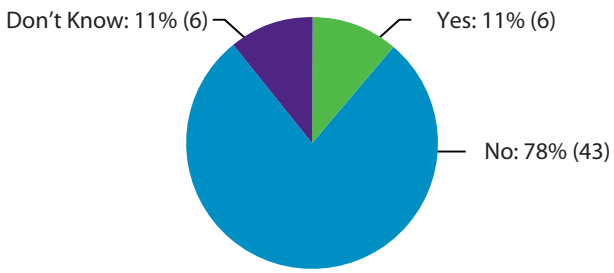
A majority (76 percent) of the 55 health departments responding to this question indicated that they planned to buy more than 10,000 tests during 2010. Sixteen (29 percent) plan to purchase more than 50,000 tests.

Performance

A series of three questions examined performance of rapid HIV tests used by the health department or health department supported programs. The first of these questions addressed clusters of false positive rapid test results experienced during 2009.[9] As presented in Figure 7, the majority (78 percent) of health departments indicated that they did not experience any false positive clusters during 2009. Only six (11 percent) health departments reported false positive clusters.

9 A "cluster" was defined as an unexpected increase in false-positive rapid test results within a defined time period.

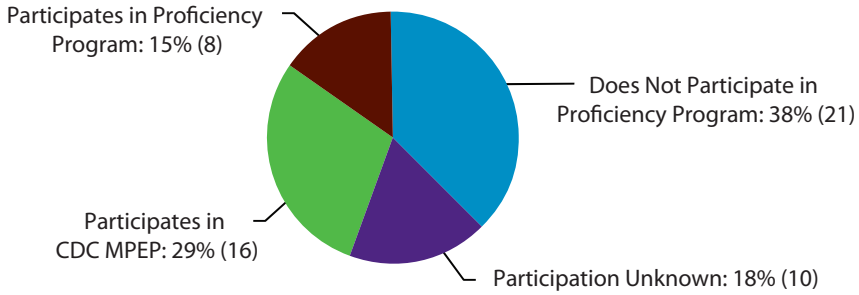
Figure 7: Percentage of Health Departments Reporting Clusters of False Positive Rapid Test Results (n=55)



Among the six health departments reporting false positive clusters, a total of eight false positive clusters were reported. Four (67 percent) health departments experienced a single cluster and the remaining two (33 percent) experienced two clusters. OraQuick Advance™ was reported in four (50 percent) of the eight clusters. Clearview Complete™ and UniGold™ were each reported in two clusters.

Five of the six health departments that reported false positive clusters indicated having investigated the possible causes for the clusters. Health departments identified the cause in four of the clusters. In three, the cause of the false positives was attributed to user error including over collection of specimen (OraQuick™) and out of range operating temperature (OraQuick™ and UniGold™). In one cluster (UniGold™), false positive results were attributed to all three clients being pregnant at the time of testing.

Figure 8: Percentage of Health Departments Reporting Participation in Proficiency Programs (n=55)



As illustrated in Figure 8, 24 (44 percent) health departments reported participating in an external proficiency program: sixteen (29 percent) participate in CDC's Model Performance Evaluation Program (MPEP) and eight (15 percent) participate in another similar program, including those run by state health department laboratories (four respondents) and the College of American Pathologists (CAP) (two respondents). One health department indicated that only the state health department laboratory participated in an external proficiency program while health department supported rapid test sites do not.

Health departments were asked to describe the frequency with which health department supported rapid test sites are required to run external controls. Responses are provided in Table 7.

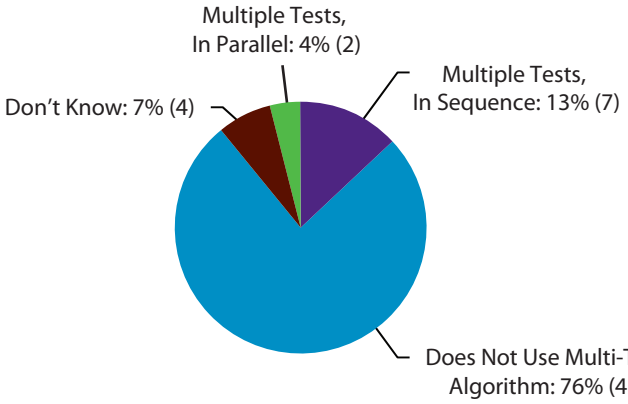
Table 7: Required Frequency for External Controls	Percent/Number (n=55)
Determined by volume	27% (15)
Each day tests are conducted	13% (7)
Don't know	9% (5)
Other	51% (28)

The majority of health departments (51 percent) indicated "other" criteria determined the frequency with which external controls are run. Twenty-seven of the 28 health departments provided detail regarding the criteria used to determine frequency of external controls. All of these 27 reported changes in testing environment (e.g., operating or storage temperature falling outside of approved range and changing venues/settings), other factors specified by manufacturers as necessitating running external controls (e.g., new shipment of tests, new lot of test and new test operator) and consecutive invalid results as the criteria used to determine frequency of external controls.

Use of Multi-Test Algorithms

Few health departments reported the use of an algorithm of multiple rapid tests as indicated in Figure 9.

Figure 9: Percentage of Health Departments Using Multi-Test Algorithms (n=55)



Among the nine (17 percent) health departments using multiple test algorithms, four (44 percent) reported that the health department has instituted this as a standard of practice. Five (56 percent) reported that individual rapid test providers have instituted multiple rapid tests as a standard of practice. One health department indicated that its use of multiple rapid tests in an algorithm was part of a research study.

Health departments using multi-test algorithms were asked to identify the specific products used in the algorithms. Eight of nine health departments provided a complete response to this question and of these, all indicated that OraQuick Advance™ was included in their algorithm. Among the seven health departments reporting use of multiple rapid tests in sequence, three reported using three

tests[10] while the remaining four indicated use of two rapid tests in sequence. It is important to note that survey responses do not provide the order in which tests are conducted, but rather only the tests that are used.

While relatively few health departments reported using an algorithm of multiple rapid tests, many appear to be interested in pursuing adoption of such algorithms. In response to the question, "Does the health department have an interest in validating a point-of-care rapid multi-test algorithm for diagnosing HIV infection?" 25 (46 percent) responded "Yes."

Future Plans for Rapid HIV Testing and Technical Assistance Needs

Health departments were asked about their plans for rapid testing for the year, specifically whether they expected to increase, decrease or keep the same number of sites[11] using rapid testing. Thirty-five (64 percent) health departments expected to increase the number of sites where rapid testing is provided and 14 (25 percent) expected to keep the same number of sites. Only one (2 percent) health department anticipated decreasing the number of sites.[12] The remaining five (9 percent) indicated that they did not know whether or not they would be increasing, decreasing or keeping the same the number of rapid test sites.

Health departments that reported they expected to increase the number of sites where rapid HIV testing is available were asked to indicate the type of sites in which they planned to expand. The responses to this question are presented in Table 8.

10 Survey responses do not indicate if all three tests are used in a single sequence or whether combinations of two of the three referenced tests are used in sequence.

11 "Sites" was defined as distinct locations where HIV testing is provided. Multiple sites can be operated within or by one agency such as is the case of an emergency department and primary health clinic both located within the same hospital. For the purposes of this survey, each would represent an individual "site."

12 This health department indicated that the decrease in the number of sites was related to the lack of yield of positives at some sites.

Table 8: Venues/Settings Planned for Expansion of Rapid HIV Testing	Percent/Number (n=35)
Community-based organizations	63% (22)
Community health centers	57% (20)
STD clinics	46% (16)
Hospital emergency departments	43% (15)
Outreach/field sites	37% (13)
Correctional facilities	34% (12)
Family planning clinics	29% (10)
Partner services	29% (10)
Substance abuse treatment centers	23% (8)
TB clinics	20% (7)
Dental care settings	20% (7)
Primary care clinics	20% (7)
Prenatal/obstetrical clinics	9% (3)
Urgent care clinics	9%(3)
Hospital inpatient settings	6% (2)
Hospital outpatient settings	6% (2)
Labor and delivery settings	3% (1)
Other (please describe)	9% (3)

HIV testing provided in community-based organizations and/or community health centers were identified as the highest priority for expanded use of rapid HIV testing. STD clinics and hospital emergency departments (EDs) are also prominent in health department plans for expansion.

With regard to the magnitude of planned expansion, health departments projected that approximately 185 additional rapid HIV test sites would be added during 2011 (Mean=7.4; Median=5; Range 2 to 20).[13]

Health departments were asked to report on technical assistance needs associated with rapid HIV testing that currently cannot be addressed by the health department. Identified technical assistance needs are presented in Table 9.

13 Of the 35 health departments reporting plans to increase the number of rapid test sites, 25 provided usable responses to the question about the number of planned additional sites.

Table 9: Rapid Testing Technical Assistance Needs	Percent/Number (n=40)
Evaluating the cost effectiveness of rapid HIV testing	53% (21)
Evaluating the impact of rapid HIV testing	43% (17)
Adopting multi-test algorithms	43% (17)
Validating rapid HIV tests from various manufacturers	18% (7)
Identifying appropriate venues and/or populations to implement rapid testing	13% (5)
Providing rapid testing in specific venues or settings	10% (4)
Test device training	8% (3)
Counselor training	5% (2)
Laboratory training for health department staff	3% (1)
Laboratory training for local providers	0% (0)
Other (please describe)	8% (3)

Among 40 health departments identifying technical assistance needs, evaluation emerged as a priority need. Specifically, health departments need external assistance in evaluating the cost-effectiveness of rapid HIV testing as well as the impact of use of rapid test technologies. Adoption of multi-test algorithms also received frequent mention. Other technical assistance needs identified by health departments included interpreting regulations from the Centers for Medicaid and Medicare Services (CMS), reimbursement, referral protocols, rapid testing and health reform and implementing rapid testing in emergency departments and community health centers.

HIV Testing in Dental Care Settings

Health departments were asked a series of nine questions regarding HIV testing in dental care settings. These items were included on this survey through a collaboration between NASTAD and the University of Miami School of Medicine. These questions were developed by the University of Miami School of Medicine based on both their information needs and previous survey questions NASTAD has asked. These questions were approved by the University of Miami School of Medicine's Institutional Review Board (IRB).

Fifty health departments indicated having implemented HIV testing in one or more health care settings. The type of health care settings in which HIV testing has been implemented is presented in Table 10.

Table 10: Health Care Settings in which Health Departments have Implemented HIV Testing	Percent/Number (n=50)
Sexually transmitted disease clinics	88% (44)
Community health clinics (e.g. federally qualified health clinics, community health centers)	86% (43)
Substance abuse treatment centers	72% (36)
Health department clinics	68% (34)
Correctional facilities	64% (32)
Family planning clinics	60% (30)
Hospital emergency departments	58% (29)
TB clinics	44%(22)
Ryan White clinics	40% (20)
Prenatal/obstetrical clinics	28% (14)
Dental care settings	22% (11)
Hospital outpatient clinics	20% (10)
Labor and delivery departments	20% (10)
Urgent care clinics	20% (10)
Hospital inpatient clinics	10% (5)
Other (please describe)	14% (7)

Health departments have widely implemented HIV testing in a range of traditional public health venues (e.g., STD clinics, substance abuse treatment, health department clinics and family planning clinics). At the same time, health departments currently support HIV testing in a variety of "non-traditional" health care settings such as community health clinics, hospital emergency departments and hospital outpatient clinics.

Health departments were asked to identify the settings in which pre-test prevention counseling is provided in conjunction with HIV testing. The results are presented in Table 11.

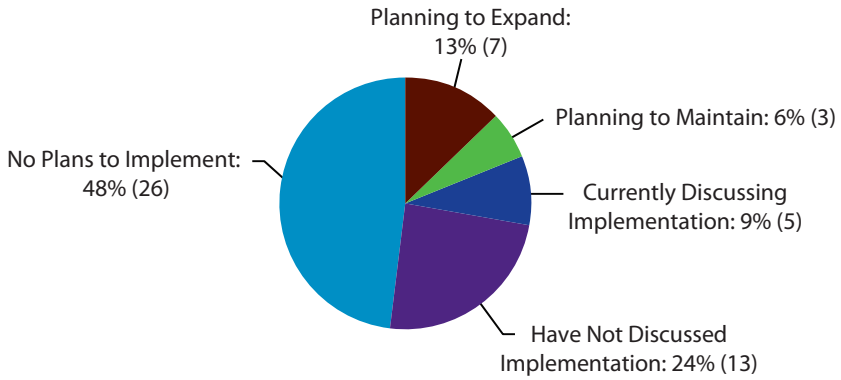
Table 11: Health Care Settings in which HIV Pre-Test Prevention Counseling is Provided in Conjunction with HIV Testing	Percent/Number (n=46)
STD clinics	70% (32)
Substance abuse treatment centers	70% (32)
Health department clinics	59% (27)
Community health clinics (e.g. federally qualified health clinics, community health centers)	57% (26)
Correctional facilities	52% (24)
Family planning clinics	39% (18)
Ryan White clinics	28% (13)
TB clinics	26% (12)
Prenatal/obstetrical clinics	13% (6)
Hospital emergency departments	13% (6)
Urgent care clinics	9% (4)
Hospital outpatient clinics	9% (4)
Hospital inpatient clinics	7% (3)
Dental care settings	4% (2)
Labor and delivery clinics	2% (1)
Other (please describe)	15% (7)

Pre-test prevention counseling is provided in conjunction with HIV testing in traditional public health venues (e.g., health department clinics) and in settings serving populations at increased risk for HIV (e.g., STD clinics and substance abuse treatment centers). Pre-test prevention counseling is less likely to be provided in non-traditional venues such as emergency departments, urgent care clinics and dental care clinics.

Health departments were asked to respond to a question about whether or not they were aware of any dental practices that currently offer HIV testing. Of 53 health departments responding to this question, 10 (19 percent) responded that they are aware of dental practices that offer HIV testing. These 10 health departments reported knowledge of at least 23 dental practices offering HIV testing at the time of the survey.

Health department efforts and activities relative to implementation of HIV testing in dental care settings are presented in Figure 10.

Figure 10: Health Department Efforts to Implement HIV Testing in Dental Care Settings (n=54)



Nearly one-half (26) of health departments have no plans to implement HIV testing in dental care settings and nearly one-fourth (13) have not discussed implementing HIV testing in dental settings. However, 19 percent (10) have already implemented HIV testing in dental care settings and plan to expand on or maintain current efforts.

Eleven health departments reported plans to either implement or expand HIV testing in dental care settings within a year. They were asked to describe the specific types of dental care settings in which they planned to implement or expand HIV testing. Among 11 health departments planning to implement or expand HIV testing in dental care settings in the next year, nine (82 percent) indicated that they planned to work with dental clinics in community health clinics, four (36 percent) with dental school outpatient clinics and three (27 percent) with private dental practices. Dental emergency rooms and hospital outpatient clinics were each mentioned by two (18 percent) health departments.

Two survey questions addressed consultation with other partners and organizations regarding implementation of HIV testing in dental care settings and oral health issues, in general. Health department responses to the question "Have you or others in your health department discussed implementing HIV testing in dental care settings with any of the following?" are presented in Table 12.[14]

14 Multiple responses were allowed.

Table 12: Partners and Organizations with which the Health Department has Discussed Implementing HIV Testing in Dental Care Settings	Percent/Number (n=46)
Community health care center dentists	13% (6)
Local health department(s)	9% (4)
State dental societies	4% (2)
State dental director	2% (1)
AETC dental director	2% (1)
Other public health dentists	2% (1)
Other local dentists (private practitioners or hospital based dentists)	2% (1)
Dental school deans and/or faculty	2% (1)
Dental researchers	2% (1)
CDC	2% (1)
Medicare/Medicaid insurance providers	2% (1)
Private health care insurance providers	0% (1)
None of the above	76% (35)
Other (please describe)	4% (2)

Only seven of 46 (15 percent) health departments reported having undertaken discussions with other partners regarding implementing HIV testing in dental care settings. Six of these seven (88 percent) health departments reported discussing HIV testing with community health center dentists and four (57 percent) with local health departments. Two of the seven (29 percent) reported discussing implementation with their AIDS Education and Training Center (AETC).

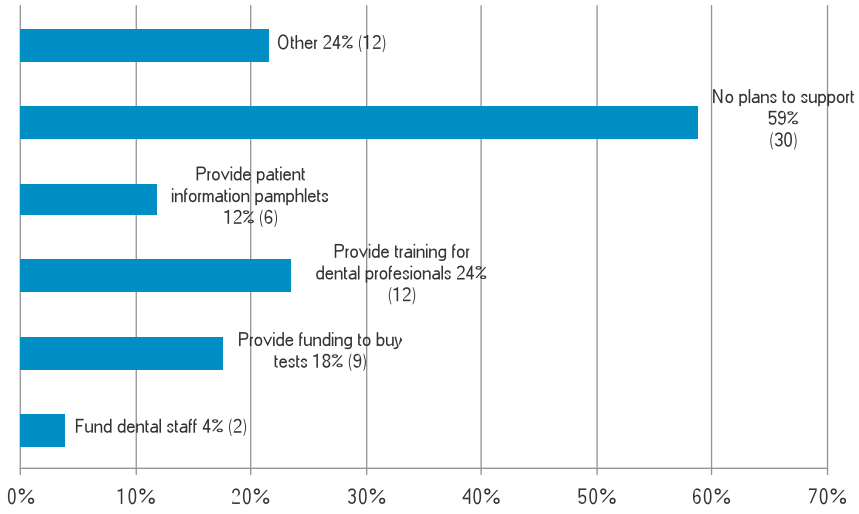
Health department responses to the question, "Have you or others in your health department discussed HIV and oral health issues in general with any of the following?" are presented in Table 13.

Table 13: Partners and Organizations with which the Health Department has Discussed HIV and Oral Health	Percent/Number (n=49)
Community health care center dentists	22% (11)
Local health department(s)	14% (7)
Other local dentists (private practitioners or hospital dentists)	14% (7)
Other public health dentists	8% (4)
State dental director	8% (4)
State dental societies	8% (4)
AETC dental director	6% (3)
Dental school deans and/or faculty	6% (3)
State medical director	4% (2)
Dental researchers	2% (1)
No discussions regarding HIV and oral health	53% (26)
Other (please describe)	14% (7)

Twenty-three of 49 (47 percent) health departments reported having undertaken discussions with other partners regarding HIV and oral health issues. Eleven (48 percent) of these 23 health departments reported discussions with community health center dentists. Local health departments and local dentists were each mentioned by seven (30 percent) of the health departments. Five health departments (22 percent) referenced discussing HIV and oral health with Ryan White service providers/AIDS service organizations.

Health departments were asked to report their plans to financially support implementation of HIV testing in dental care settings. As presented in Figure 11, 30 (59 percent) health departments reported that they do not currently have plans to financially support implementation of HIV testing in dental care settings.[15]

Figure 11: Health Department Plans to Support HIV Testing in Dental Care Settings (n=51)



Twenty-one health departments (41 percent) have plans to support (or are currently discussing plans to implement) HIV testing in dental care settings. Among these 21, provision of training to dentists and other dental care providers was reported by 12 (53 percent) health departments. Nine (43 percent) indicated that they would provide funding to purchase HIV tests and six (29 percent) reported that they would provide dental care professionals with patient information pamphlets. Three health departments (14 percent) reported plans to provide HIV tests to dental clinics at no cost. Eight health departments (38 percent) reported that financial support of HIV testing in dental care settings was under discussion.[15]

Twelve health departments reported which funding source(s) they plan to use in supporting HIV testing in dental care settings. Ten (80 percent) reported that federal funding from CDC would be used. Six (50 percent) indicated that state/local funds would be used to support HIV testing in dental care settings and five (42 percent) indicated that other federal funds would be used. Medicaid, Medicare and other private insurance each received two (17 percent) mentions, while patient fees were reported by one (8 percent) health department.[15]

15 Multiple responses accepted.

From a list of 15 issues,[16] health departments were asked to select and rank the top three most important barriers to implementing HIV testing in dental care settings within their jurisdiction. Of these 15 issues, six emerged as important barriers: lack of funding, lack of data to support screening approaches, lack of interest among dentists, identification of appropriate facilities/settings in which to conduct HIV testing, lack of interest among dental staff and possibility of discrimination.

- Lack of funding to support implementation was the most important barrier in that it was reported by 30 of 50 (60 percent) health departments as one of the top three barriers to implementation. Seventeen health departments (34 percent) reported this as the number one barrier.
- Lack of data to support or justify screening approaches was reported by 19 of 50 (38 percent) health departments as one of the top three barriers to implementation. Ten (20 percent) health departments cited this as the most important barrier to implementation of HIV testing in dental care settings.
- Lack of interest in HIV testing among dentists was cited by 19 of 50 (38 percent) health departments as one of the top three barriers to implementation. Six (12 percent) reported this as the number one barrier to implementation.
- Identification of specific dental care settings appropriate for HIV testing was identified by 14 health departments as one of the top three barriers. Two health departments identified it as the most important barrier, three as the second most important barrier and nine as the third most important barrier.
- Lack of interest in HIV testing among dental staff was cited by 11 of 50 (22 percent) health departments, with three (6 percent) citing this as the most important barrier.
- Eight of 50 (16 percent) health departments identified the possibility of discrimination/stigma among the top three barriers. One health department identified it as the most important barrier, two as the second and five as the third most important barrier.

The remaining nine barriers were identified as being among the top three barriers to implementation of HIV testing in dental care settings by a minority of health departments:

- Lack of reimbursement for HIV testing by dental insurers (6 health departments)
- Lack of Medicaid reimbursement for HIV testing (4 health departments)
- Concerns about maintaining client confidentiality (4 health departments)
- Lack of mechanisms to assure patient entry to care and treatment (4 health departments)
- Lack of mechanisms to assure patient entry to prevention and support services (3 health departments)
- Educating dentists about statutory/regulatory requirements (3 health departments)
- Counseling statutes/regulations (2 health departments)
- Patient acceptance of HIV testing in dental care settings (1 health department)
- Consent statutes/regulations (1 health department)

Three health departments also indicated concerns regarding the appropriateness of providing HIV testing in dental care settings either because of the capacity of providers to provide these services or because of the relative risk of patients in such settings.

Health departments were encouraged to provide comments and suggestions to contribute to an improved understanding about the assistance and support needs associated with implementing

16 Survey respondents were asked to rank the following factors: sensitivity, specificity, price, run time, read window, ease of specimen collection, oral application, ease of reading results, ease of performing test, approved for HIV-2, length of shelf life (tests), length of shelf life (controls), operating temperature, storage temperature, ease of integration into clinic flow and other.

HIV testing in dental care settings. Twenty-two health departments provided comments and suggestions. Six health departments cited the need to better understand the rationale and potential value of HIV testing in dental care settings, particularly in relation to other settings and in the context of constrained resources. Three cited a lack of interest and willingness to implement HIV testing among dental care providers as an important issue and suggested working with state and national professional associations (e.g., the National Dental Association) and implementing educational and marketing campaigns as potential strategies to address this issue. Two health departments indicated training and education on reimbursement issues (e.g., billing codes, rates insurance coverage) would be helpful. Two health departments indicated that funding to "seed" HIV testing in dental care settings would be beneficial with regard to stimulating uptake among dental care providers and their patients.

Discussion

Rapid HIV testing continues to be an important prevention tool for health departments and is used in a wide variety of settings and venues. Since NASTAD's 2008 survey, health departments have expanded the use of rapid testing in key settings, most notably STD clinics, hospital emergency departments (EDs), substance abuse treatment facilities and correctional health clinics.

- In 2008, 15 health departments reported using rapid HIV tests in EDs. In 2010, this had increased to 29 health departments.
- In 2008, 35 health departments reported using rapid HIV tests in STD clinics. In 2010, 48 health departments reported using rapid tests in STD clinics.
- In 2008, 31 health departments reported rapid HIV testing in substance abuse treatment facilities in 2008, compared with 41 in 2010.
- In 2008, 28 health departments reported use of rapid HIV tests in correctional health clinics. In 2010, 36 health departments reported using rapid tests in correctional health clinics.

Expansion in the use of rapid HIV tests, particularly in the venues highlighted above is likely associated with increased funding for HIV testing in health care settings made available by CDC's Program Announcement 07-0768, *Expanded Integrated Human Immunodeficiency Virus (HIV) Testing for Populations Disproportionately Affected Primarily African Americans* or the "Expanded Testing Initiative."

This survey documents an increase in the number of HIV tests conducted by health departments when compared to the previous survey. A total of 2,951,647 HIV tests were conducted in 2010 compared with 2,093,339 in 2008. While conventional testing accounts for 39 percent of all tests conducted (in 2008 and 2010), conventional testing on oral specimens is declining. In 2010, 12 percent of all conventional tests were conducted on oral specimens, compared with 21 percent in 2008. In terms of volume, 139,207 conventional tests were conducted on oral samples, compared with 149,175 in 2008.

In both 2008 and 2010, rapid tests accounted for 61 percent of all tests conducted. In 2010, 47 percent of all rapid HIV tests were conducted on oral samples. This suggests a shift away from conventional testing in settings and venues where oral HIV testing is preferred.

As HIV testing technology continues to evolve, it will be important to understand the contexts in which testing on oral fluid is preferred and/or "value added." With the advent of the so-called fourth generation assays, which have improved sensitivity, health departments will need to weigh the value of improved sensitivity against the convenience provided by oral fluid testing, which by comparison has a lower level of sensitivity. Additionally, combination tests that make possible testing for HIV along with hepatitis C and/or syphilis, at the point of care, are on the horizon. Some of these will be available for use on blood specimens only. Again, health departments will need to consider the tradeoffs associated with use of oral fluid testing.

Price continues to be the most important factor cited by health departments in determining which rapid HIV test(s) to use. Increased competition from multiple manufacturers of rapid HIV tests has driven the price of rapid HIV tests down, enabling health departments to expand use of this technology.

Sensitivity and ease of use (particularly with respect to integrating HIV testing into clinic flow) were also prominent factors considered by health departments in deciding which rapid test(s) to use. Because health departments use rapid HIV testing in a wide array of settings and for diverse populations, they need to have the ability to match test features to various settings and populations in order to optimize HIV testing efforts.

The ability to conduct HIV testing using oral fluid was also cited by health departments as an important factor considered in determining which rapid test(s) would be used. However, slightly less than one-third (17) of health departments use OraQuick™ exclusively. This indicates that health departments require flexibility with respect to the specific test technology adopted in order to make best use of resources and to make the best match between setting, population and test technology.

The majority (89 percent) of health departments require that a confirmatory specimen be acquired at the time that reactive rapid HIV test results are delivered, with the expectation that the client return to the HIV test site in order to receive confirmatory test results. At the same time, many health departments (46 percent) allow referral to medical care for clients with reactive rapid test results without having a confirmatory result in hand. This eliminates the need for a follow-up visit for receipt of confirmatory results and, ostensibly, facilitates expedient access to medical care.

The majority (56 percent) of health departments also report that Ryan White care providers do not accept referrals from patients who only have a rapid test result without a confirmatory test. Providers are allowed to use Ryan White funds to pay for confirmatory HIV testing for patients referred to them with only a reactive rapid test result if their local jurisdiction (Part A or B funding) has prioritized and funded Early Intervention Services (EIS) and if the provider has received funding for EIS. Unfortunately, it appears that local jurisdictions seldom fund EIS and many providers, therefore, do not have available funding to conduct confirmatory HIV testing for patients referred to them with only a reactive rapid test result. Clarification of the HRSA policy for EIS and subsequent prioritization and funding of EIS at the local level would allow Ryan White providers to pay for confirmatory testing for patients referred to them with only a reactive rapid test result. In addition, HRSA should allow providers greater flexibility to pay for confirmatory testing under other service categories (e.g., Primary Medical Care) which would also increase the likelihood that patients with a reactive rapid test could more easily access Ryan White care providers. HRSA and CDC should work together to ensure that policies and lack of payment/reimbursement for confirmatory testing are not barriers for effective referrals and linkages to care.

The practice of providers ordering confirmatory tests likely facilitates more complete and timely HIV case reporting. However, this practice also represents a duplication of costs and efforts if unconfirmed clients who are referred to care have additional confirmatory tests ordered in order to be accepted for care. This practice also has the potential to delay medical care and increase inconvenience for patients. Optimally, confirmatory test results should be made available to care providers in order to facilitate engagement in care. The challenges associated with sharing

confirmatory test results with care providers, particularly those who are "out of system," warrants examination. Gaining a better understanding of the practices that facilitate coordination between HIV testing and care providers, including sharing confirmatory test results as well as other relevant health care information, would enhance systems for referral and linkage.

As we move, nationally, toward acceptance of use of combinations of rapid HIV tests to diagnose HIV infection at point-of-care combined with a movement away from the Western blot as the "gold standard" for HIV diagnosis, concern has been expressed regarding the potential negative impact on HIV/AIDS surveillance activities. Specifically, if HIV diagnoses are made at point-of-care (e.g., by community-based organizations) and Western blot (or similar confirmatory) testing is not conducted (or has been replaced by other confirmatory strategies), how many HIV infections will remain unreported or reported late in the course of infection?

The majority of health departments conducting rapid HIV testing currently require that confirmatory specimens be obtained at the time of reactive results delivery. Many health departments also allow referrals on the basis of unconfirmed reactive rapid test results. Health departments that have adopted this practice indicated that this practice has not resulted in a decrease in the volume of confirmatory tests conducted. Indeed, most health departments indicated that medical providers generally order tests to confirm HIV diagnoses and determine stage of disease. Results of one or more tests used by medical providers to diagnose and/or stage HIV disease (most notably viral load testing) are reportable by statute or regulation in most jurisdictions. This suggests that concerns about the possible negative impact of point-of-care testing on surveillance may be overstated. Nonetheless, it is important to closely examine state and local reporting requirements in order to more fully understand the implications of and to adequately prepare for emerging strategies for diagnosing HIV infection, including those that are not laboratory-based.

A majority of health departments reported that confirmatory test results are not available to HIV testing providers for a week or more. This is a critical issue with regard to referral to and engagement in care in that lengthy turn-around times for confirmatory test results delay entry to medical care. If duplicate confirmatory tests are ordered, this has the potential to further delay medical care. The availability and adoption of HIV test technologies that enable diagnoses to be made by HIV testing providers is one potential strategy to address this challenge. However, health departments and their laboratory partners should explore the factors that contribute to lengthy turn-around times for confirmatory test results and develop strategies to address identified issues. Health departments may benefit from opportunities to consult with their peers in other jurisdictions who have successfully addressed this issue.

All of the rapid HIV tests currently in use by health department supported HIV testing programs perform well. Very few clusters of false positives were identified by health departments and these were primarily attributable to user error. OraQuick Advance™ was involved in most of the false-positive clusters.

Health departments appear to have adopted sound quality assurance practices. Nearly one-half of health departments reported exceeding manufacturer's requirements for conducting external controls. Less than one-half of health departments participate in a proficiency program, such as CDC's Model Performance Evaluation Program (MPEP). There is no charge for participation in MPEP and health department rapid testing programs could benefit from this (or similar programs) relative to strengthening quality assurance practices.

Survey responses indicate an increase in the number of health departments using combinations of rapid tests at point-of-care when compared with findings from the 2008 survey. Ten health departments participating in the current survey reported using combinations of rapid tests compared with just two in the prior survey. Survey findings also indicate, however, that many health departments are interested in using combinations of rapid tests. Health departments want, and would benefit from, information about how to implement multi-test algorithms as well as the potential benefits and drawbacks of various combinations of tests. Health department peers who have already implemented multi-test algorithms could serve as a valuable source of information and technical assistance in this regard.

With regard to the future, the majority (64 percent) of health departments reported that they anticipate further expanding their use of rapid HIV testing. Community-based organizations, outreach/field sites, STD clinics, hospital emergency departments and community health clinics emerged as priorities for planned expansion. This suggests that health departments recognize that these settings and venues are high yield with respect to test volume and new diagnoses and therefore contribute to optimizing prevention resources. It also suggests that health departments have successfully implemented rapid testing in these venues and settings and possess the tools to replicate that success. Indeed, very few health departments indicated a need for technical assistance to support implementation of rapid HIV testing (e.g., test device training and venue-specific issues).

A large proportion of health departments identified a need for technical assistance and support in evaluating the cost-effectiveness of rapid HIV testing (53 percent) and in evaluating the impact of rapid HIV testing (43 percent). This is a notable increase over the 2008 survey in which 44 percent of health departments indicated a need for technical assistance to evaluate the cost-effectiveness of rapid HIV testing and 37 percent indicated a need for technical assistance in evaluating the impact of rapid testing. These findings indicate continuing and intensified need among health departments to better understand their very sizeable investment in rapid testing specifically, and HIV testing in general. This should be a priority area for technical assistance. Health department peers who have evaluated HIV testing efforts, including rapid testing practices, could provide valuable and needed assistance.

Few health departments are currently supporting HIV testing in dental care settings and few have plans to do so. Financing is probably the most important barrier to implementation of HIV testing in dental care settings, although health departments also indicated the need to better understand the extent to which HIV testing in dental care settings is appropriate, feasible and "value added" – both among health departments and among dental care professionals. Provider education and advocacy through professional organizations may be helpful in addressing these barriers. Health departments would also value assistance in working with insurers regarding obtaining reimbursement for HIV testing in dental care settings.

Limitations

There are several limitations to these findings. All data were self-reported and are subject to the knowledge and interpretation of the individual(s) who completed the survey. The survey included questions that asked respondents to quantify test volume, either in terms of the number of tests conducted or the number of test devices purchased. Several health departments were not able to provide these data, including some jurisdictions that conduct relatively high volumes of tests. One question asked health departments to quantify the number of tests conducted, by specimen types. Again, several health departments were not able to provide this information. Therefore, all survey questions that address the volume of tests conducted or purchased likely under-represent the total volume of tests.

Some comparisons have been made with findings from previous surveys. While the responses to this and the previous survey were very good, several jurisdictions that participated in the current survey did not participate in the previous survey. Therefore, where comparisons are made, they are made with caution. Additionally, respondents to the 2008 survey were asked to provide estimates in response to questions about the volume of tests conducted and the number of tests purchased. The current survey asked respondents to provide an accurate count of volume of tests conducted and purchased, therefore comparisons of these items are also made with caution. The wording of some questions has been changed from the previous survey in an effort to clarify the intent and obtain more accurate data. Therefore direct comparison of these items is not possible.

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